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The effect of watching television/using electronic devices on body mass index among people who are 12 years old and above in Al-Ahsa region

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Abstract
Purpose: To find out the fact that watching television or using electronic devices affect the Body Mass Index negatively.
Materials and Methods: We have done a descriptive cross-sectional study was conducted through an online survey. The sample size was 385 individuals. The Inclusion criteria is the people who are 12 years old and above for both genders living in Al-Ahsa region.
Results: There are 236of our study are men and 149 are women. There are 240 individuals exercise regularly, by comparing them with the Body Mass Index, the P value was 0.303 which means that there is no significant relationship between these two categories. Likewise, the people who watch television or use electronic devices are 316 individuals, by comparing them with the Body Mass Index, the P value was 0.095 which means that there is no significant relationship between them.
Conclusion: We have concluded that Al-Ahsa citizens are aware of their health and there is no significant relationship between watching television or using electronic devices on the Body Mass Index because they exercise regularly.

Keywords: obesity, body mass index, watching television, electronic devices, Saudi Arabia, Alahsa

Introduction

Obesity is defined as the "accumulation of adipose tissue to excess and to an extent that impairs both physical and psychosocial health and well-being" [1]. It is associated with various health problems, including type 2 diabetes, cardio-vascular disease and cancer [2]. The epidemic nature of obesity in industrialized countries is a serious health and social concern. The number of obese people has significantly increased in the past 20 years [3]. The overall prevalence of obesity in Saudi Arabia was projected to increase from around 12% in 1992 to 41% by 2022 in men, and from 21% to 78% in women. Women had much higher projected prevalence than men, particularly in the age groups 35-44, 45-54 and 55-64 years [4]. The study "Trends and future projections of the prevalence of adult obesity in Saudi Arabia, 1992-2022" conducted by Al-Quwaidhi, A J in 2014 showed that adult obesity is a major public health problem in Saudi Arabia, and if the currently observed trends continue, the levels are expected to rise substantially over the next decade [4]. There is a strong association between television viewing time and adiposity [5]. While the magnitude of the television– obesity association has been found to be small and potentially of limited clinical relevance at the individual level [6], the effect of some television reduction interventions on measures of obesity has been substantial (7- 8). In addition, because of the ubiquitous nature of the exposure [9-10] and the fact that patterns of sedentary behavior appear to be retained from adolescence to adulthood [11], television viewing may be an important modifiable risk factor for overweight and obesity. Furthermore, studies in adults have shown television viewing to be associated with an increased risk of not only obesity but also lack of physical fitness, the metabolic syndrome, cardiovascular disease and premature mortality [12-13]. Our aim is to test the hypothesis that there is a strong relationship between being a sedentary person who tends to sit most of his time [14] and obesity among people who are 12 years old and above in Al-Ahsa region.

Materials and methods

A descriptive cross-sectional study was conducted through an online survey. Our research contains many test subjects like, the chronic disease can effect on the BMI, the effect of exercise, the number of hours which are spent in front of the TV/electronic devices, and the types of food when watching TV on the BMI. We have started our research on 19th December 2016 and it should be completed by 9th May 2017. Inclusion criteria: the people who are 12 years old and above for males and females living in Al-Ahsa region. Exclusion criteria: the children who are below 12 years old or live in another city. The sample size was 385 people which were analyzed by using Microsoft Excel 2010, then it was transformed into IBM SPSS Statistics 19 program.

Results

Table 1

		N	%
Gender	Male	236	61.3
	female	149	38.7
Age	Over 18 years old	349	90.6
	Between 12 and 18	36	9.4

Table 2

Times of doing exercise			Comparing with BMI	
	N	%	Chi square	P value
People who do exercise regularly	240	62.3	13.971	0.303
People who do not do exercise regularly	145	37.7		

Table 3

people who watch TV/use electronic devices in a day			Comparing with the BMI	
	N	%	Chi square	P value
Watching TV/using electronic devices	316	82.0779	18.740	0.095
Not Watching TV/using electronic devices	69	17.9220		

Table 4

People who sit playing video games in a day			Comparing with the BMI	
	N	%	Chi square	P value
People who sit playing video games in a day	101	26.2	16.780	0.158
People who do not sit playing video games in a day	284	73.8		

Table 5

Body Mass Index		
	N	%
Underweight (< 18.50 points)	28	7.3
Normal (18.50 - 24.99 points)	121	31.4
Overweight (≥25.00 points)	107	27.8
Obese (≥30.00 points)	129	33.5

Discussion

Table (1) shows the sample size of the study, which is 385. The inclusion criteria is females and males whose ages are from 12 and above. The exclusion criteria is people under 12 years old. At baseline, the number of males involved in the study is 236 (61.3%), and for the female side is 149 (38.7%).

Table (2) shows that the number of people in the study who do exercise regularly is 240 (62.3%) and on the other hand, the number of those who do not do exercise is 145 (37.7%). By comparing the results of times of doing exercise (table 2) with the results of body mass index of people in the study (table 5), we concluded that since the P value is 0.303 which is greater than 0.05, therefore, there is no relationship between the two categories.

Table (3) shows that the number of people in the study who watch TV/ use electronic devices in a day is 316 (82.0779%) and on the other side, the number of those who do not watch TV/ do not use electronic devices in a day is 69 (17.9220%). By comparing the results of Watching TV/using electronic devices (table 3) with the results of body mass index of people in the study (table 5), we concluded that since the P value is 0.095 which is greater than 0.05, therefore, there is no relationship between the two categories.

Table (4) shows that the number of people in the study who sit playing video games in a day is 101 (26.2%) and on the other hand, the number of those who do not sit playing video games in a day is 284 (73.8%). By comparing the results of (table 3) with the results of body mass index of people in the study (table 5), we concluded that since the P value is 0.158 which is greater than 0.05, therefore, there is no relationship between the two categories.

Table (5) shows that the body mass index (BMI), which is defined as the weight in kilograms divided by the square of the height in meters (kg/m2) (15), of people in the study. Note that the principal cut-off points for BMI classification are adopted from WHO (15).

Review of literature

1. According to Obesity: the worldwide epidemic which was done by Philip T. James, CBE, MD, DSc in the United states in 10.2004 which was concluded that the cost of obesity people in the health care is predicted to increase continuously in the next years which is a public health problem according to the WHO
2. The fact sheets in the World Health Organization which was updated in June.2016 was stated that the common complications of being obesity or overweight are cardiovascular diseases (especially heart attack) which were causing death in 2012, cancers (including breast, colon, and endometrial), and obesity is also associated with diabetes.
3. The study which is about the television in the bedroom and increased body weight which was published first time in December 2012 by (A.J. cameron, *et al*. 2012) which was said that there is a strong relationship between the presence of television in the children's bedroom in Europe and obesity and how many hours they are watching it. Also, it was concluded that the parents should be aware when they put the television in their children's parents and monitor the time for watching it.
4. According to the study of the relationships between media use, body fatness and physical activity in children and youth which was done by (SJ Marshall, SJH Biddle, T Gorely, *et al*. in August 2004) [6], it was stated that the relationship between TV viewing and media use among the body fitness of the children and youth is likely to be less significant clinically because it needs more than one inactivity markers such as more than just TV viewing or video games use.
5. The study of reducing children's television viewing to prevent obesity which was done by Thomas N. Robinson, MD, MPH in October 1999 in the United States was concluded that American children spend much of their time in watching television, videotapes, and playing video games which is major cause of obesity among American children and because the programs which are designed to increase the physical activity and reduce the energy intake are not beneficial in preventing obesity, so it was stated that the children should reduce their television viewing will dramatically decrease the obesity of the children.
6. The Dance and reducing television viewing to prevent weight gain in African-American girls which was done by (Robinson TN[1], Killen JD, Kraemer HC, *et al*. 2003) [8] in 2003 which was concluded that doing kinds of dances and

strategies of the family can help in reducing the chance of getting more weight for African-American girls.

7. The Comparison of overweight and obesity prevalence in school-aged youth from 34 countries and their relationships with physical activity and dietary patterns was done by (I. Janssen, P. T. Katzmarzyk, *et al*. in 2005) [9] that was in April.2005 for 34 countries which was said that the highest countries which was examined are Malta and the United States among school-aged youth and they said that increasing in the physical activity and decreasing the television viewing should be the first priority in treating this global issue.
8. The Parental and home influences on adolescents' TV viewing which was done by (SASKIA J. TE VELDE, *et al*. 2011) which was published in June.2011 which was concluded that the TV in the bedroom of adolescents have a significant association with the Theory of Planned Behavior variables and their attitude.
9. The A descriptive epidemiology of screen-based media use in youth: A review and critique was done in 2005.08 which showed that the youth people who are using the media much of their time in their youth they are more likely to use the media much time when they are older.
10. The Television Viewing and Risk of Type 2 Diabetes, Cardiovascular Disease, and All-Cause Mortality was done Anders Grøntved, MPH, MSc; Frank B. Hu, MD, PhD in June.2011 which was concluded that the higher TV viewing there will be a higher risk of getting type 2 diabetes, cardiovascular diseases, and all-cause mortality by doing meta-analysis.

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Future Prospects

Nowadays, people used to spend much of their time in using electronic devices/watching TV and sit in their home. So, We were afraid that the people in Al-Ahsa region will be obese and consider under the prevalence that is projected in 2022 which states that there will be high prevalence of obese people in Saudi Arabia. We thought that we will have a strong relationship between increasing the hours in watching TV/using electronic devices and the increase of the BMI. Fortunately, we are happy when we found out that the people who live in Al-Ahsa region have an awareness about their health and they were exercising as best as they can.

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